

## Vaccine Facts

Vaccine	Dosage	Local reactions	Systemic reactions	Epidemiology	Allergic Contraindications
<b>Anthrax Vaccine Adsorbed</b> <b>Manufacturer(s)</b> <b>BioPort Corp.-</b> <b>"AVA"</b>	<p>Series: Six subcutaneous (SC) 0.5 mL injections given at 0, 2, and 4 weeks, and 6, 12, and 18 months. Booster: Annual SC 0.5 mL injection.<sup>1, 6, 10</sup></p> <p>Anthrax Vaccine Adsorbed is not indicated for pediatric use because investigations to date have been conducted exclusively in the population of 18 to 65 years of age.<sup>1,2</sup></p> <p>Required of certain deployable military personnel</p>	<p>Mild local reactions may occur as much as 30% of the time. Erythema and tenderness occur within 24 hours and begin to subside by 48 hours. These reactions tend to increase in severity by the fifth injection and then decrease in severity with subsequent doses.<sup>1,2</sup></p> <p>Moderate local reactions: Defined as erythema &gt; 5mm, these may occur in 4% of recipients especially after the second dose, and are associated with pruritis. Subcutaneous nodules may occur at the injection site and persist for several weeks.<sup>1</sup></p> <p>Severe local reactions: Rare and feature extensive edema of the forearm and local inflammatory reactions as noted.<sup>2</sup></p>	<p>Systemic reactions occur in &lt;0.2%, usually characterized by malaise and lassitude. Chills and fever are rare. In such cases, discontinue immunization regimen.<sup>1</sup></p>	<p>Anthrax occurs globally. Most common in agricultural regions with poor control programs for anthrax in livestock, it affects domestic animals which spread the disease to humans (the form of anthrax that occurs in more than 95% of human cases is cutaneous). High risk regions include South and Central America, Southern and Eastern Europe, Asia, Africa, the Caribbean, and the Middle East. Largest recent human Anthrax epidemic occurred in Zimbabwe during 1978–1980; 9445 cases and 141 deaths. US incidence of human anthrax has declined from 130 cases annually in the early 1900s to no cases during 1993-2000. In October-November 2001, 22 cases of anthrax (11 inhalational, 11 cutaneous) were identified; 5 of the inhalational cases were fatal. B. anthracis has been manufactured as a biological warfare agent because of its ability to be transmitted by the respiratory route and subsequent high mortality. The World Health Organization estimated that 50 kg of B. anthracis spores released upwind of a population center of 500,000 could result in 95,000 deaths and 125,000 hospitalizations.</p>	<p>AVA is contraindicated for persons who have experienced an anaphylactic reaction following a previous dose of AVA or any of the vaccine components (The vaccine contains no more than 0.83 mg aluminum per 0.5mL dose, 0.0025% benzethonium chloride as a preservative, and 0.0037% formaldehyde as a stabilizer).<sup>6</sup></p>
<b>Diphtheria, Tetanus, and Pertussis (DTaP)</b> <b>Manufacturer(s)</b> <b>AventisPasteur;</b> <b>GlaxoSmithKline-</b> <b>"Tripedia;</b> <b>Infanrix"</b>	<p>Children Only (ages 6 weeks up to 7 yrs of age): Five dose series with a Three dose primary series; 0.5 mL IM injection, usually began at 2 months of age and repeated at 4 months, 6 months, followed by a two-dose booster series usually given at 15 to 20 months of age and 4 to 6 years of age. Primary series doses must be given at 4 to 8 week intervals (preferably 8 weeks). The first booster dose must be given at least 6 months after the third dose of the primary series. The fifth dose should be given after 4 years of age before the child enters elementary school. (Note: If the fourth dose was not given until after 4 years of age, a fifth dose is not necessary.)</p>	<p>Children: Local reactions (generally erythema and induration with or without tenderness) are common after the administration of vaccines containing diphtheria, tetanus, or Pertussis antigens. Occasionally, a nodule may be palpable at the injection site of adsorbed products for several weeks. Local reactions: pain, 1 per 2 doses; swelling, 2 per 5 doses; and redness, 1 per 3 doses.<sup>4</sup></p> <p>Moderate local reactions: Sterile abscesses at the injection site have been reported rarely (6-10 events per million doses of DTP).<sup>4</sup></p>	<p>Children: Mild systemic reactions such as fever, drowsiness, fretfulness, and anorexia occur frequently. These reactions are substantially more common following the administration of DTP than dT, but are self-limited and can be safely managed with symptomatic treatment. Rare but serious acute neurological illnesses, including encephalitis/encephalopathy and prolonged convulsion, have been anecdotally reported following receipt of whole-cell Pertussis vaccine given as DTP.<sup>4</sup></p>	<p>DIPHTHERIA: A rare disease in the US because of high immunization levels among children (97% entering school have received at least three doses). Most cases occur in unimmunized or inadequately immunized persons. Protection lasts 10 yrs or more but doesn't eliminate nose, throat or skin carriage of <i>C. diphtheriae</i>.</p> <p>PERTUSSIS: Introduction of standardized whole-cell DTP in the late 1940s resulted in a substantial decline of disease which continued without interruption for nearly 30 years. Case reports peaked in 1934 with 265,269 cases and 7518 deaths. During the 1980s reported cases increased from 1730 cases in 1980 to 4157 cases in 1989, with an annual average of eight deaths.</p> <p>TETANUS: <i>Clostridium tetani</i> spores are ubiquitous. Primary vaccination and regular boosters are necessary to protect all age-groups, is highly effective as protective immunity persists for 10 years or more. Cases reported decreased from 560 in 1947 to a low of 48 in 1987. Primarily a disease of older adults, of 99 cases reported in 1987-88, 67 were in persons over 50. Case-fatality rate was 21%.</p>	<p>Infanrix-Immunization is contraindicated for persons who have experienced an anaphylactic reaction following a previous dose or if hypersensitivity exists to any of the vaccine components (The vaccine contains no more than 0.625 mg aluminum per 0.5mL dose, 2.5 mg of 2-phenoxyethanol as a preservative and not more than 0.02% residual formaldehyde).<sup>5</sup></p> <p>Tripedia-Immunization is contraindicated for persons who have experienced an anaphylactic reaction following a previous dose or if hypersensitivity exists to any of the vaccine components (gelatin, Thimerosal).<sup>5</sup></p>

## Vaccine Facts

Vaccine	Dosage	Local reactions	Systemic reactions	Epidemiology	Allergic Contraindications
<b>Hepatitis A Manufacturer(s) GlaxoSmith Kline; Merck &amp; Co.-"Havrix; VAQTA"</b>	<p>Adults (age 19 and older): Two dose series; 1.0 mL intramuscular (IM) injection, repeated in 6 to 12 months. Children (ages 2 to 19): Two dose series; 0.5 mL IM injection, repeated in 6 to 12 months. (Note: If the 360 EL.U./0.5 ml formulation of Havrix is used, a three dose series is used: initial 0.5 mL IM doses at followed at 1 and 6 to 12 months.)</p> <p>Required for all military personnel</p>	<p>Havrix: In adults, the most frequent side effects are soreness at the injection site, headache and malaise. In children, the most frequent side effects are soreness and/or induration at the injection site, feeding problems and headache.<sup>2</sup></p> <p>VAQTA: In clinical trails with both children and adults, the most frequent complaints were injection site reactions, such as pain, tenderness, warmth and swelling. Some adults also complained of headache, while this was less likely to occur in children and adolescents.<sup>2</sup></p>	<p>Local or systemic allergic reactions that occurred in &lt;1% of adults in clinical trials, regardless of causality included injection site pruritis or rash, bronchial constriction, asthma, wheezing, edema/swelling, rash, generalized erythema, urticaria, pruritis, eye irritation/itching and dermatitis.<sup>1</sup></p> <p>Children and adolescents: Less than 1% of vaccine recipients reported adverse effects which were pain (18.7%), tenderness (16.8%), warmth (8.6%), erythema (7.5%), swelling (7.3%), fever (&gt; 102 degrees F, oral) (3.1%), headache (2.3%), abdominal pain (1.6%), pharyngitis (1.5%), ecchymosis (1.3%), upper respiratory infection (1.1%), cough (1%), diarrhea (1%) and vomiting (1%).<sup>1</sup></p>	<p>Disease incidence peaked in the US prior to wide-spread improvements in sanitation systems. From 1981 through 1992, 21,000 to 36,000 cases were reported annually in the US. But the true rate is probably substantially higher, perhaps 75,000 to 143,000 cases per year, at a cost of 200 million. About 100 people die of fulminant hepatitis A in the US each year. The disease rate in the US is about 15 cases per 100,000 population, but 100 cases per 100,000 Native Americans. Throughout the world, &gt; 10 million clinical cases occur each year, with an estimated 14,000 deaths. Hepatitis A in adulthood is more severe and more likely to be fatal. The case-fatality rate is about 0.3% overall, but may reach 2.7% in persons &gt; 49 years of age. Although 67% of cases occur in children, &gt; 70% of deaths occur in persons &gt; 49 years of age. Hepatitis A accounts for as many as 50% of all US hepatitis cases each year.<sup>1</sup></p>	<p>Immunization is contraindicated for persons who have experienced an anaphylactic reaction following a previous dose or in people with known hypersensitivity to any of the vaccine components (Havrix contains no more than 0.5 mg aluminum per 1.0 mL and 0.5% 2-phenoxyethanol as a preservative; VAQTA contains no more than 0.45 mg aluminum per 1.0 mL and 70 mcg of sodium borate as a pH stabilizer).<sup>5</sup></p>
<b>Hepatitis B Manufacturer(s) GlaxoSmith Kline; Merck &amp; Co.-"Engerix-B; Recombivax HB"</b>	<p>Three dose series: Three IM doses at 0, 1, and 6 months.</p> <p>Adults (age 20 and over): Recombivax HB and Engerix-B are both given in 1.0 mL doses.</p> <p>Pediatric/adolescent dose (age 19 and under): Recombivax HB and Engerix-B are both given in 0.5 mL doses.</p> <p>Alternate adolescent schedule (ages 11 through 15): Two doses of Recombivax-HB given in 1.0 mL doses separated by 4 to 6 months. Interchangeability. Either vaccine, Recombivax-HB or Engerix-B, may be used to complete a vaccination started with the other vaccine, unless the alternate adolescent schedule/dose for Recombivax-HB was started which must be completed with the same product.</p> <p>Required for all military recruits since 2002</p>	<p>Adverse reactions are comparable for the two hepatitis B vaccines. Pain occurs at the injection site in 17-22% of recipients. Tenderness pruritis, induration, erythema, ecchymosis, swelling, warmth or nodule formation may also occur. These effects are usually mild and do not require special treatment.<sup>1,2</sup></p> <p>Local reactions at injection site; (&lt;1% of injections) pain; pruritis; ecchymosis.<sup>3</sup></p> <p>Children: Hepatitis B vaccine is well tolerated and highly immunogenic in newborns, infants, and children.<sup>1</sup></p>	<p>Systemic Reactions: Fatigue, weakness, headache, fever &gt;37.5 degrees C, malaise, nausea, diarrhea, dizziness, pharyngitis, upper respiratory infection, abnormal liver functions, thrombocytopenia, eczema, purpura, tachycardia or palpitations, erythema multiforme (eg. Stevens-Johnson syndrome) by temporal association. 14-15% of systemic complaints may involve pain, tenderness, pruritis, induration, erythema, ecchymosis, swelling, warmth or nodule formation.<sup>1</sup></p> <p>An apparent hypersensitivity syndrome (serum-sickness-like) of delayed onset has been reported days to weeks after vaccination that has symptoms of transient arthralgia/arthritis, fever and dermatologic reactions such as urticaria, erythema multiforme, ecchymoses and erythema nodosum.<sup>3</sup></p>	<p>The annual US acute hepatitis B incidence rate is about 65 cases per 100,000 (300,000 cases which include 100,000 asymptomatic cases, 16,000 hospitalizations) and 5200 deaths (4000 cirrhosis deaths, 800 liver cancer deaths and 400 fulminant hepatitis B deaths). Some 1 to 1.25 million chronic carriers currently reside in the US, a number that is growing by 2% to 3% per year. At least 30% of reported adult hepatitis B cases are not associated with an identifiable risk factor (sexual activity or parenteral drug use). 45% of cases occur through heterosexual contact. Of newly infected persons, 60% to 80% of neonates and 6% to 10% of adults become chronic carriers. Worldwide, hepatitis B is responsible for 5 million new cases annually, an estimated 170 million chronic infections, and 250,000 deaths.<sup>1</sup></p>	<p>Engerix B and Recombivax HB are contraindicated for persons who have experienced an anaphylactic reaction following a previous dose or in people with known hypersensitivity to yeast or any of the vaccine components (no more than 0.5 mg aluminum per mL and 1:20,000 thimerosal as a preservative).<sup>5</sup></p>

## Vaccine Facts

Vaccine	Dosage	Local reactions	Systemic reactions	Epidemiology	Allergic Contraindications
<b>Inactivated Polio Manufacturer(s) AventisPasteur- "IPOL"</b>	All doses are 0.5 mL SC. Military accessions: Single dose unless unvaccinated (see below). Infants and children: Three dose primary series; 0.5 mL IM injection, usually began at 2 months of age and repeated at 4 months, and 6-18 months. A booster must be given between 4 to 6 years of age. Primary series doses must be given at 4 to 8 week intervals (preferably 8 weeks). Adults: Single lifetime booster for adult travelers to endemic areas, unless unvaccinated, in which case a full series should be given (0, 1-2, 6-12 months; 0, 4, 8 weeks if accelerated schedule is needed).	Less than 10% of persons vaccinated have erythema, induration or pain at the vaccination site within 48 hours. <sup>5</sup> Children: Irritability, sleepiness, fussiness and crying within 48 hours of vaccination. <sup>5</sup>	Adults: rare Children: Temperatures > 102 degrees F may occur in up to 38% of persons within 48 hours of vaccination. Because this vaccine is often given concurrently with DTP, systemic reactions could not be attributed to a specific vaccine. <sup>5</sup>	127 cases of paralytic poliomyelitis were reported in the US between 1980 and 1994; 6 of these cases were imported, 2 were indeterminate and 119 were caused by the oral poliovirus vaccine. Currently the disease is nearly eradicated from the Western hemisphere. <sup>5</sup>	IPOL is contraindicated for persons who have experienced an anaphylactic reaction following a previous dose or in people with known hypersensitivity to any of the vaccine components including neomycin, polymyxin B and streptomycin. The vaccine also contains 0.5% 2-phenoxyethanol and 0.02% formaldehyde per dose as preservatives. <sup>5</sup>
<b>Influenza, AventisPasteur; Wyeth/Lederle, "Fluzone; Flushield"</b>	An annual dose should be administered as soon as the new year's vaccine becomes available. Adults/Adolescents (over 12): 0.5 mL IM Children (age 6-35 months): 0.25 mL IM* Children (age 3-12 years): 0.5 mL IM* *Children aged less than 9 years receiving influenza vaccine for the first time should receive two doses in the amounts listed above for each age group separated by at least 4 weeks.  Required annually for all military personnel <sup>10</sup>	Mild local reactions consist of soreness at the vaccination site and affect 10%--64% of recipients and lasts less than 48 hours. These reactions are mild and rarely interfere with the person's usual daily activities. <sup>7</sup> Moderate local reactions of local pain and swelling have occurred in 20%--28% of asthmatic children (age range; 9 months to 18 years) who were immunized. <sup>7</sup>	Adults: Immediate --- presumably allergic --- reactions (e.g., hives, angioedema, allergic asthma, and systemic anaphylaxis) rarely occur after influenza vaccination. These reactions probably result from hypersensitivity to certain vaccine components; the majority of reactions probably are caused by residual egg protein. <sup>7</sup> Children: Fever, malaise, myalgia, and other systemic symptoms can occur after vaccination and most often affect persons who have had no prior exposure to the influenza virus antigens in the vaccine (e.g., young children). These reactions begin 6--12 hours after vaccination and can persist for 1--2 days. <sup>7</sup>	Epidemics of influenza occur during the winter months and are responsible for approximately 20,000 deaths/year in the United States. Influenza viruses also can cause pandemics, during which rates of illness and death from influenza-related complications can increase dramatically worldwide. Influenza viruses cause disease among all age groups. Rates of infection are highest among children, but rates of serious illness and death are highest among persons aged >65 years and persons of any age who have medical conditions that place them at increased risk for complications from influenza. <sup>7</sup>	Influenza Vaccine is prepared using eggs; therefore anyone who has had an anaphylactic reaction to eggs or egg products or a previous dose should not receive this vaccine. Also, individuals who are sensitive to thimerosal should not receive the vaccine. <sup>5</sup>
<b>Japanese Encephalitis Manufacturer(s) AventisPasteur- "JE-VAX"</b>	Primary Series: Three 1.0 mL SC injections given at days 0, 7 and 30. Booster: Single 1.0 mL SC injection every 3 years. Do not give to infants under 1 year of age.  Required of certain deployable military personnel. If needed for persons traveling soon to an endemic area, a shortened vaccine schedule with doses on days 0, 7, and 14 may be used. <sup>5</sup>	20% of persons vaccinated have pain, redness and inflammation at the injection site. <sup>5</sup>	Moderate systemic reactions: 10% of persons vaccinated experience fever, headache, muscle pain, chills, nausea, vomiting, abdominal pain and discomfort. Severe systemic reactions: About 1 in 260 persons who receive the vaccine develop an allergic reaction that can consist of wheals, hives, respiratory distress and anaphylaxis. <sup>5</sup>	Japanese Encephalitis Virus is an acute infectious viral disease. The disease is fatal in 25% of cases and leaves residual neurologic deficits in 30% of cases. Mosquitoes spread the virus from reservoir hosts (usually domesticated pigs and wading birds). JEV is the leading cause of encephalitis in Asia, occurring with the highest frequency in China, Korea, the Indian subcontinent and Southeast Asia. It occurs with lower frequency in Japan, southeastern Russia, Hong Kong, Singapore, Taiwan, and parts of Oceania.	Proven hypersensitivity to rodents or proteins of neural origin, Thimerosal or a previous dose should not receive this vaccine (JE-VAX is produced in mouse brains). <sup>5</sup>

## Vaccine Facts

Vaccine	Dosage	Local reactions	Systemic reactions	Epidemiology	Allergic Contraindications
<b>Measles, Mumps, Rubella Virus Vaccine Live (MMR) Manufacturer(s) Merck &amp; Co.- "MMR II"</b>	<p>Two dose series: Initial 0.5 mL SC dose given after age 12 months, followed by second 0.5 mL SC dose recommended routinely at age 4-6 years, but may be administered during any visit, provided at least 4 weeks have elapsed since the first dose. Those who have not previously received the second dose should complete the schedule by the 11-12 year old visit.</p> <p>Military personnel and DoD health care providers (military or civilian): One 0.5 mL SC dose regardless of year of birth unless there is documentation of prior receipt of two doses of MMR vaccine after the first birthday or serological evidence of immunity to all three agents.</p>	<p>Burning or stinging, pain, erythema or rash at the injection site may occur for a short period of time.<sup>1</sup></p> <p>Children: Following vaccination in children, transient joint pain and swelling may occur in up to 3% of recipients.</p>	<p>Moderate systemic reactions: Symptoms of the same kind as seen following natural measles or rubella infection may occur after vaccination: Mild regional lymphadenopathy, urticaria, rash, malaise, sore throat, fever, headache, dizziness, nausea, vomiting, diarrhea, polyneuritis, arthralgia or arthritis (usually transient and rarely chronic). In adult women, incidence rates for arthritis and arthralgia are higher and tend to be of longer duration.<sup>1</sup></p>	<p>Measles: 894,134 cases were reported in 1941 in the US. The lowest number of measles cases ever reported in the US was 1497 cases in 1983, but this downward trend was reversed in 1984. In 1989; 18,163 cases were reported, in 1990; 27,786 cases, in 1991; 9488 cases and 2200 cases in 1992. 40 to 100 measles-related deaths are reported annually, a rate of about 4 deaths per 1000 reported Measles cases. Around the world, almost 2 million children die of measles annually.<sup>1</sup></p> <p>Mumps: Peaked in 1967 with 185,691 reported cases, an estimated total incidence of 2 million cases. Lowest number of cases the US was 2982 in 1985. 7790 cases were reported in 1986, followed by the post-vaccination peak of 12,848 cases in 1987. 2460 cases were reported in 1992.<sup>1</sup></p> <p>Rubella: The 1963-64 US rubella pandemic produced 12.5 million rubella cases with 2000 cases of encephalitis. 30,000 infants (1% of all pregnancies) were affected, with 6250 spontaneous abortions and 2100 excess neonatal deaths. In 1988, 225 cases were reported, the lowest ever. 1372 cases were reported in 1991, the highest annual</p>	<p>MMR II is produced using chick embryo cell culture; therefore anyone who has had an anaphylactic reaction to eggs or egg products or a previous dose should not receive this vaccine. Also, individuals who are sensitive to thimerosal should not receive the vaccine.<sup>5</sup></p>
<b>Meningococcal Manufacturer(s) AventisPasteur- "Menomune"</b>	<p>Primary immunization: Single 0.5 mL SC dose.*</p> <p>Booster dose: 0.5 ml SC administered 5 years after the primary vaccination or previous booster dose. (Saudi Arabia requires a booster for persons entering during the Hajj if they have not received a dose in the last 3 years.)</p> <p>*All enlisted and officer accessions must be immunized per recent Navy message</p>	<p>Adults: Adverse reactions are infrequent and mild consisting mainly of pain and localized redness lasting 1 to 2 days.<sup>1</sup></p> <p>Children: Up to 2% of young children may develop transient fever after immunization.<sup>1</sup></p>	<p>rare</p>	<p>Meningococcal meningitis and meningococcemia are serious diseases with case-fatality rates between 5 and-15%. 5 to 10 % of the population in areas with endemic disease are asymptomatic carriers (N. meningitidis colonization occurs in the nasopharynx). The bacteria are spread via inhalation of airborne droplets, intimate contact (e.g., kissing) or contact with objects that are freshly soiled by an infected carrier's nasal secretions. N. meningitidis serogroups A, B, C, X, Y, Z, W-135 and L cause invasive disease, with serogroup A being the main cause in developing countries (especially Africa and Asia) and serogroups B and C accounting for 90% of all cases in the U.S. (The vaccine is protective against serogroups A, C, Y and W-135).<sup>1</sup></p> <p>Meningococcal meningitis can occur at any age but is most common in children under 5 years old. During epidemics, half of all cases occur in persons under 2 year of age.<sup>1</sup></p>	<p>Vaccine should not be used in persons who have had severe allergic reactions to a previous dose or Thimerosal .</p>
<b>Pneumococcal Manufacturer(s) Wyeth/Lederle; Merck &amp; Co.- "Pnu-Immune; Pneumovax 23"</b>	<p>Adult and Children over 2: Single 0.5 mL dose, either IM or SC.</p> <p>Revaccination (Booster) is recommended 5 years after the first vaccination.</p> <p>Recommended for persons over 65 and other persons with high-risk conditions, not required among military personnel</p>	<p>Approximately half of persons who receive pneumococcal vaccine develop either pain, erythema or swelling at the injection site. These reactions usually persist for less than 48 hours. Moderate systemic reactions (fever and myalgias) and more severe local reactions (local induration) are rare.<sup>8</sup></p>	<p>Severe systemic adverse effects (anaphylactic reactions) rarely have been reported after administration of pneumococcal vaccine. Recent trials of pneumococcal vaccine showed local reactions were observed among approximately one third or fewer of patients receiving the vaccine and there were no reports of severe febrile or anaphylactic reactions.<sup>8</sup></p>	<p>Streptococcus pneumoniae (pneumococcus) is a bacterial pathogen that affects children and adults worldwide. It is a leading cause of illness in young children and causes illness and death among the elderly and persons who have certain underlying medical conditions. The organism colonizes the upper respiratory tract and can cause the following types of illnesses: a) disseminated invasive infections, including bacteremia and meningitis; b) pneumonia and other lower respiratory tract infections; and c) upper respiratory tract infections, including otitis media and sinusitis. Each year in the United States, pneumococcal disease accounts for an estimated 3,000 cases of meningitis, 50,000 cases of bacteremia, 500,000 cases of pneumonia, and 7 million cases of otitis media.<sup>8</sup></p>	<p>Pneumovax 23 is contraindicated for persons who have known hypersensitivity to any vaccine component (The vaccine contains 0.25% phenol as a preservative).<sup>5</sup></p> <p>Pnu-Immune 23 is contraindicated for persons who have had any type of neurological symptoms or signs following previous administration of this product or who have a known hypersensitivity to any vaccine component (The vaccine contains thimerosal in a concentration of 0.01% as a preservative).<sup>5</sup></p>

## Vaccine Facts

Vaccine	Dosage	Local reactions	Systemic reactions	Epidemiology	Allergic Contraindications
<b>Rabies</b> <b>Manufacturer(s)</b> <b>AventisPasteur-</b> <b>"Imovax Rabies</b> <b>HDCV"</b>	<p>Post-Exposure Series (5 doses): 1.0 mL of Imovax Rabies HDCV should be given IM into the deltoid muscle in adults or into the anterolateral zone of the thigh in small children (under 1 year of age); the first dose (on day 0) as soon as possible after exposure, and additional doses on each of days 3, 7, 14 and 28 after the first dose.</p> <p>*A single dose of RIG should also be given on day 0 as described below.</p>	<p>Redness, itching, mild pain and minimal swelling at the site of injection.<sup>5</sup></p>	<p>Uncommon. Systemic allergic or anaphylactic following primary immunization have been reported to occur in less than 1% of recipients.<sup>5</sup></p>	<p>Rabies in wildlife occurs throughout the United States; only Hawaii remains consistently rabies-free. In 1999, 91.5% of all laboratory-confirmed cases of rabies reported to the CDC were in wild animals. Wildlife (especially bats), therefore, are the most important source of infection for humans and domestic animals. Although bats represent a minor fraction of the total reservoir of rabies in the US, since 1990 a total of 24 (92%) of the 26 human cases of rabies acquired in the United States have been associated with bat rabies virus variants, with the silver-haired bat/eastern pipistrelle virus variant predominating.</p>	<p>No specific contraindications. When a person with a history of hypersensitivity must be given Rabies Vaccine, antihistamines may be given; epinephrine (1:1000) should be readily available to counteract anaphylactoid reactions and the person should be carefully observed.<sup>5</sup></p>
<b>Rabies Immune Globulin</b> <b>Manufacturer(s)</b> <b>AventisPasteur-</b> <b>"Imogam Rabies</b> <b>HT"</b>	<p>Dosage of Imogam Rabies – HT: 0.133 mL/kg (20 IU/kg) or 0.06 mL/lb (9 IU/lb) of body weight given IM as promptly as possible after exposure in conjunction with the first dose of Rabies vaccine. If anatomically feasible, the full dose of Rabies Immune Globulin should be thoroughly infiltrated in the area around and into the wounds. Any remaining volume should be injected intramuscularly at a site distant from vaccine administration. Two injections would be given in the gluteal muscle if the volume is greater than 5 mL. Imogam Rabies - HT may be given up to eight days after the first dose of vaccine and is supplied in 2 mL and 10 mL vials with minimal potency of 150 International Units per milliliter (IU/mL).</p>	<p>Tenderness, pain, soreness or stiffness of the musculature may occur at the injection site and may persist for several hours after injection.<sup>5</sup></p>	<p>Mild systemic adverse reactions to the globulin after intramuscular injection are uncommon.<sup>5</sup></p>	<p>see above</p>	<p>Imogam Rabies-HT should be given with caution to persons with a history of prior systemic allergic reactions following the administration of human immune globulin.<sup>5</sup> Persons with specific IgA deficiency have increased potential for developing antibodies to IgA and could have anaphylactic reactions to subsequent administration of blood products containing IgA.<sup>5</sup></p>

## Vaccine Facts

Vaccine	Dosage	Local reactions	Systemic reactions	Epidemiology	Allergic Contraindications
<b>Smallpox</b> <b>Manufacturer(s)</b> <b>NA -"Dryvax"</b>	<p>Scarification Technique: A bifurcated needle designed to hold a tiny drop of vaccine (sufficient size and strength to ensure a take if properly administered) is used.</p> <p>Initial vaccination: Three insertions are made perpendicular to the skin in rapid order in the marked area.</p> <p>Revaccination (10 years after initial): Fifteen insertions should be made.</p> <p>When giving 15 insertions, give 5 jabs, followed by a brief rest; then 5 more followed by a brief rest; then complete last set of 5.</p> <p>Required of certain deployable military personnel and certain civilian medical personnel</p>	<p>Normal local reactions that are not considered adverse events include local satellite lesions, which look like the primary vaccination site; lymphangitis (redness surrounding the site which is due to inflammation of small lymph vessels); considerable local edema and viral cellulitis (intense inflammation surrounding the vaccination site) which may appear to be bacterial cellulitis but does not require antibiotic treatment.</p>	<p>Accidental implantation-The most common adverse effect; viruses transferred from vaccination site cause minor skin lesions elsewhere or in other individuals.</p> <p>Eczema Vaccinatum-multiple confluent (running together) vaccination-like lesions.</p> <p>Post-vaccination encephalitis-very rare and usually occurs 10-14 days after vaccination.</p> <p>Headache, vomiting, drowsiness and fever are the first symptoms observed and usually transient. In severe cases, symptoms progress to include paralysis, incontinence, urinary retention and seizures.</p> <p>Erythema Multiforme-mildest form consists of a few papules (raised bumps) or erythematous (red) blotches. Ranges from urticaria (hive-like lesions), vesicles (fluid-filled bumps) or even pustules (pus-filled bumps) to an extensive rash covering most of their body; all resolve.</p> <p>Progressive Vaccinia-life threatening complication due to such conditions that suppress the immune system such as HIV/AIDS or cancer chemotherapy characterized by a non-healing, enlarging vaccination site. There may be associated ulceration and necrosis.</p>	<p>Severe viral disease with characteristic skin lesions that killed one of every three persons infected. The last case of smallpox in the United States was in 1949. The last naturally occurring case in the world was in Somalia in 1977. Routine vaccination against smallpox among the general public was stopped in the late 1970s after the disease was eliminated. Now a potential biological warfare agent.</p>	<p>Allergic contraindications: People who experienced problems after a previous dose of smallpox vaccine or one of its ingredients (polymyxin B, streptomycin, chlortetracycline, neomycin, or latex). Also contraindicated for persons diagnosed with eczema or atopic dermatitis now or earlier in life, including anyone who has had eczema or atopic dermatitis since age 8; other current skin conditions such as burns, impetigo, contact dermatitis, chickenpox, shingles, psoriasis or uncontrolled acne. Once the condition resolves, these individuals may be vaccinated.</p>
<b>Tetanus and Diphtheria Toxoids Adsorbed, Adult (Td)</b> <b>Manufacturer(s)</b> <b>AventisPasteur-"Tetanus Toxoid"</b>	<p>Primary Series: Not needed if DTaP series completed. First dose of Td should be given at age 11-12, 0.5 mL IM. If DTaP series not completed, a three dose Td primary series consisting of two 0.5 mL IM doses given 4-8 weeks apart, followed by a third 0.5 mL IM dose given 6-12 months after the second dose is necessary.</p> <p>Booster: 0.5 mL IM; Individuals previously vaccinated with Td should receive a booster dose once every ten years. If an individual sustains a wound considered tetanus-prone, a booster dose of Td should be administered if the last booster was more than 5 years in the past.</p> <p>Required of all military personnel</p>	<p>A small amount of erythema, induration, pain, tenderness, heat, and edema surrounding the injection site, persisting for a few days in not unusual. Such local reactions are usually self-limited and require no therapy.<sup>1</sup></p> <p>Children: Diphtheria Toxoid Adsorbed for pediatric use commonly has side effects of redness, tenderness, and induration surrounding the injection site.<sup>1</sup></p> <p>Moderate local reactions: A nodule may be palpable at the injection site for a few weeks. Abscess at injection site is 6-10 cases per million doses.<sup>1</sup> Exaggerated, local reactions consisting of painful swelling from shoulder to elbow, may occur 2-8 hours after injection with tetanus Toxoid vaccines. These reactions are reported most often in adults (especially those who have received frequent booster doses of Td) and are believed to be attributable to the tetanus Toxoid components.<sup>2</sup></p>	<p>Temperatures &gt; 37.8°C (100.0°F) are uncommon.<sup>1</sup></p> <p>Systemic reactions, such as fever, chills, myalgias, and headaches, also may occur.</p> <p>Severe systemic reactions, such as generalized urticaria and anaphylaxis are rare. CDC notes that recent evidence favors a causal relationship between tetanus toxoid and both brachial neuritis and Guillain-Barre syndrome in adult vaccinees, although these reactions are very rare.<sup>2</sup></p> <p>Urticaria, erythema multiform or other rash, arthralgias, and more rarely, a severe anaphylactic reaction (i.e., urticaria with swelling of the mouth, difficulty breathing, hypotension, or shock) have been reported following administration of preparations containing tetanus and/or diphtheria antigens.<sup>3</sup></p> <p>Children: Transient fever, malaise, generalized aches and pains, flushing, generalized urticaria or pruritis, tachycardia, hypotension.<sup>1</sup></p>	<p>Diphtheria Toxoid Adsorbed, For Pediatric Use: 206,000 cases and 10,000 deaths were reported in 1921, primarily among children (200 cases per 100,000 people, 5% to 10% case-fatality rate.) Between 1980 and 1992, only 37 cases were reported in the US, but the case fatality rate has remained constant at about 5% to 10%. Diphtheria is rare in modern times because of high levels of immunization and an apparent reduction in the circulation of toxigenic strains of the bacterium. Case-fatality rates are highest in very young persons and in the elderly.<sup>1</sup></p>	<p>Td is contraindicated for persons who have had any type of neurological symptoms or signs following previous administration of this product or who have a known hypersensitivity to any vaccine component (The vaccine contains 0.3 mg of aluminum per 0.5 mL dose, residual formaldehyde in a concentration of less than 0.02% and thimerosal in a concentration of 0.01% as a preservative).<sup>5</sup></p>

## Vaccine Facts

Vaccine	Dosage	Local reactions	Systemic reactions	Epidemiology	Allergic Contraindications
<b>Typhoid (acellular) injection</b> <b>Manufacturer(s)</b> <b>AventisPasteur-</b> <b>"Typhim VI"</b>	Dose: 0.5 mL SC or IM every 2 years  Typhoid immunization (Typhim VI or Ty21a) is required of all deployable military personnel	Injection site pain, erythema and induration resolving in 48 hours or less is usual. <sup>5</sup>	Elevated oral temperature, above 38°C (100.8°F) may be seen in 1% of recipients. No serious or life-threatening systemic events have been reported. <sup>5</sup>	Typhoid fever is a serious disease caused by <i>Salmonella typhi</i> bacteria that are spread in water or food contaminated by feces or urine from infected humans. Around 500 cases a year occur in the US, 17 million cases and 600,000 deaths occur annually in the rest of the world. It is endemic in developing countries of Asia, Africa, South and Central America.	Typhim VI is contraindicated in persons with a history of hypersensitivity to any vaccine component (The vaccine contains 0.065 mg of disodium Phosphate and 0.023 mg of Monosodium Phosphate per 0.5 mL dose). <sup>5</sup>
<b>Typhoid (oral)</b> <b>Manufacturer(s)</b> <b>Berna-"Vivotef</b> <b>Berna aka</b> <b>Ty21a"</b>	Series: One capsule taken by mouth with a cool beverage an hour or more before a meal, on days 1, 3, 5, and 7. An alternative schedule for administration on days 1, 3, 5, and 8 (i.e. Monday, Wednesday, Friday, and the following Monday), is acceptable. The series should be repeated every 5 years.	Very infrequent episodes of diarrhea, abdominal pain, nausea, fever and headache. <sup>5</sup>	One case of non-fatal anaphylactic shock has occurred in over 60 million doses of this vaccine. <sup>5</sup>	See above	Ty21a is contraindicated in persons with a history of hypersensitivity to any vaccine component or the enteric coated capsule. Capsules contain sucrose, magnesium stearate, lactose, ascorbic acid and amino acid mixture. <sup>5</sup>
<b>Varicella</b> <b>Manufacturer(s)</b> <b>Merck &amp; Co.-</b> <b>"Varivax"</b>	Children: Single 0.5 ml SC dose for children between 12 months and 13 years of age. Adults/adolescents (over 13 yrs): Two dose series, consisting of one 0.5 ml dose SC followed in 4- weeks by a second.* Booster doses are not required. *Susceptible Navy and Marine Corps accessions are to be immunized with the two-dose vaccine series (those who do not have a reliable history of varicella, a documented two-dose series of varicella vaccine, or serological evidence of immunity).	Children less than 12: Pain and redness at the injection site. Persons 12 and older: Up to 33% will have soreness, swelling, erythema, rash, pruritis, hematoma, pyrexia, induration or numbness at the injection site. <sup>9</sup>	Persons 12 and older: About 10% will develop fever (oral temperature greater than or equal to 100°F) within a month of vaccination. <sup>9</sup>	Before varicella immunization began, 90% of Chicken pox cases occurred in person under 15 years of age. Specific annual rates between 1980 and 1990 were 82.8 cases per 1,000 in children 1-4 years of age, and 91.1 cases per 1,000 in children 5-9 years of age. On average, during 1987-1992, 9300 varicella-related hospitalizations and 94 deaths occurred.	Varivax immunization is contraindicated for persons who have a history of anaphylactic reaction to any component of the vaccine, including gelatin. Varicella virus vaccine should not be administered to persons who have a history of anaphylactic reaction to neomycin. Each 0.5-mL dose also contains 12.5 mg of hydrolyzed gelatin, trace amounts of neomycin and fetal bovine serum, 25 mg of sucrose and trace residual components of MRC-5 cells (including DNA and protein). The vaccine does not contain preservatives.
<b>Yellow Fever</b> <b>Manufacturer-</b> <b>AventisPasteur-</b> <b>"YF-VAX"</b>	Dose: 0.5 ml SC injection at least 10 days prior to exposure. Booster: 0.5 ml SC injection every 10 years. Not for infants under 4 months of age, and not recommended for infants under 9 months of age unless at particularly high risk.  Required of all deployable military personnel	Reactions to this vaccine are generally mild and include fever, headache and muscle ache. These reactions occur 5 to 14 days after immunization and occur in 10% of recipients. <sup>1</sup>	Serious side effects (anaphylaxis) are rare. <sup>1</sup>	Yellow fever is an acute infectious viral disease spread by mosquitoes that attacks the liver. In severe cases it causes jaundice, giving the disease its name, "Yellow Fever." In non-immune adults the case-fatality rate is more than 60%. 20-50% of jaundiced cases are fatal. The World Health Organization estimates that 200,000 cases occur annually, mostly in sub-Saharan West Africa. It is also endemic in South and Central America.	YF-VAX is contraindicated in persons with a history of a hypersensitivity reaction to this vaccine or any of its components. The vaccine contains sorbitol and gelatin. <sup>1, 5</sup>
<b>References:</b>	<ol style="list-style-type: none"> <li>1. Grabenstein, J.D., "Immunofacts Vaccines &amp; Immunologic Drugs", 1995</li> <li>2. Thompson, R.F., "Travel &amp; Routine Immunizations", 1997</li> <li>3. Vernon, T.M. "PDR 1998 Vaccine Prescribing Guide", 1997</li> <li>4. U.S. Department of Health and Human Services "Update: Vaccine Side Effects, Adverse Reactions, Contraindications, and Precautions", 1996</li> <li>5. PDR, 54th Edition, 2000</li> <li>6. CDC: "Use of Anthrax Vaccine in the United States, Recommendations of the Advisory Committee on Immunization Practices (ACIP)", October 2000</li> <li>7. CDC: "Prevention and Control of Influenza, Recommendations of the Advisory Committee on Immunization Practices (ACIP)", 2001</li> <li>8. CDC: "Prevention of Pneumococcal Disease: Recommendations of the Advisory Committee on Immunization Practices (ACIP)", 1997</li> <li>9. CDC: "Prevention of Varicella: Recommendations of the Advisory Committee on Immunization Practices (ACIP)", 1996</li> <li>10. Navy BUMED Notice 6230: "Immunization Requirements and Recommendations", 1998</li> </ol>				